09/295,697

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FILE 'CAPLUS' ENTERED AT 08:33:19 ON 31 MAR 2003
L1          1993 S MICROCHIP# OR (MICRO (W) CHIP#)
L2          3800 S MICROCHANNEL# OR (MICRO (W) CHANNEL#)
L3            36 S MICROCONDUIT# OR (MICRO (W) CONDUIT#)
L4          1746 S MICROFLUIDIC OR (MICRO (W) FLUIDIC)
L5          3839 S MICROFABRICAT? OR (MICRO (W) FABRICAT?)
L6          1949 S MESOSCALE OR (MESO (W) SCALE)
L7            69 S TOTAL (W) ANALYSIS (W) SYSTEM#
L8           251 S MU (W) TAS
L9           791 S LAB? (3W) (CHIP OR MICROCHIP)
L10        12672 S L1 OR L2 OR L3 OR L4 OR L5 OR L6 OR L7 OR L8 OR L9
L11            0 S L10 AND (MOLECULAR (W) WIRE#)
L12          318 S L10 AND (BIOSENSOR# OR (BIO(W) SENSOR#))
L13           18 S L12 AND ELECTROPHOR?
L14           22 S L12 AND 2003/PY
L15          486 S L1 AND 2002/PY
L16           79 S L12 AND 2002/PY
L17           75 S L12 AND 2001/PY
L18           46 S L12 AND 2000/PY
L19          189 S L14 OR L16 OR L17 OR L18
L20      1193061 S 12 NOT L19
L21          129 S L12 NOT L19
L22           37 S L12 AND 1999/PY
L23           33 S L12 AND 1998/PY

=> d l23 5 6 17 20 23 25 27 bib ab
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L23 ANSWER 5 OF 33 CAPLUS COPYRIGHT 2003 ACS
AN 1998:815679 CAPLUS
DN 130:262671
TI Development of a DNA biochip: principle and applications
AU Vo-Dinh, Tuan
CS Oak Ridge National Laboratory, Oak Ridge, TN, 37831-6101, USA
SO Sensors and Actuators, B: Chemical (**1998**), B51(1-3), 52-59
CODEN: SABCEB; ISSN: 0925-4005
PB Elsevier Science S.A.
DT Journal; General Review
LA English
AB A review with 17 refs. on the operating principle of a DNA biochip based on integrated circuit for use in biomedical diagnostics. The device is a self-contained system with photosensors, amplifiers, discriminators and logic circuitry on board. The development and evaluation of various **microchip** system components of the genosensor are also reviewed. Fluorescence detection of gene probes specific to DNA sequences related to pathogens such as the human immuno-deficiency virus 1 (HIV1) system illustrates the usefulness and potential of the DNA biochip technol. for rapid and cost-effective medical diagnostics. Potential usefulness of the DNA biochip in clin. applications and functional genomics research is discussed.
RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 6 OF 33 CAPLUS COPYRIGHT 2003 ACS
AN 1998:813238 CAPLUS
DN 130:133399
TI **Microfabrication** of chamber-type **microchips** and its applications for chemical sensors
AU Tian, Chen-Yun; Jia, Neng-Qin; Wang, Rong; Zhang, Zong-Rang; Zhu, Jiang-Zhong; Zhang, Guo-Xiong
CS Department of Chemistry, Shanghai Teachers University, Shanghai, 200234, Peop. Rep. China
SO Sensors and Actuators, B: Chemical (**1998**), B52(1-2), 119-124
CODEN: SABCEB; ISSN: 0925-4005
PB Elsevier Science S.A.
DT Journal
LA English

AB A micromachined 3 .times. 6 mm chip with a 3-dimensional silicon chamber (1.2 .times. 1.2 mm2 and 300 .mu.m thick)was developed for the construction of micro-size chem. sensors and **biosensors**. Anisotropic etching was used for the formation of the chamber on the p-type silicon wafer (100) and then was anodic bonded to the Pyrex glass down-substrate with pre-deposited platinum electrode. The electrochem. characterization of its Pt electrode and Ag/AgCl ref. electrode is reported. It could be used as the substrate electrode for the sensing part of designed chem. sensors and **biosensors** with a protective and controlled environment. The preliminary application in the detection of H2O2, potassium ion and glucose is also reported. A cyclodextrin-ferrocene inclusion complex was prepd. and used as the charge transfer mediator for glucose oxidase with promising results.
RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 17 OF 33 CAPLUS COPYRIGHT 2003 ACS
AN 1998:479639 CAPLUS
DN 129:91401
TI Customized oligonucleotide **microchips** as **biosensors** and their use
IN Mirzabekov, Andrei; Guschin, Dmitry Y.; Shik, Valentine; Fotin, Alexander; Yershov, Gennadiy; Lysov, Yu.
PA The University of Chicago, USA
SO PCT Int. Appl., 76 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 3

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9828444	A2	19980702	WO 1997-US23778	19971219 <--
WO 9828444	A3	19981217		
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9857160	A1	19980717	AU 1998-57160	19971219 <--
EP 951569	A2	19991027	EP 1997-953408	19971219
R: DE, FR, GB				
PRAI US 1996-780026	A	19961223		
WO 1997-US23778	W	19971219		

AB Disclosed are **biosensors** contg. customized oligonucleotide **microchips** constructed on micromatrices and their use to diagnose genetic defects, to identify polymorphisms, and to monitor quant. gene expression. The **microchip** contains oligonucleotide probes for detecting target nucleic acids via hybridization. **Biosensors** for detection of nitrifying microorganisms; diagnosis of .beta.-thalassemia by detecting .beta.-globin gene mutations; and detection of gene expression, HLA polymorphism, Lyme Disease spirochetes, and Salmonella in food samples were also shown.

L23 ANSWER 20 OF 33 CAPLUS COPYRIGHT 2003 ACS
AN 1998:414685 CAPLUS
DN 129:51691
TI Chemical and biological sensors having electroactive polymer thin films attached to **microfabricated** devices and possessing immobilized indicator moieties
IN Guiseppi-Elie, Anthony
PA USA
SO U.S., 30 pp., Cont.-in-part of U.S. 5,352,574.
CODEN: USXXAM
DT Patent

LA English
FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5766934	A	19980616	US 1994-318494	19941004 <--
	US 5352574	A	19941004	US 1991-771759	19911004
PRAI	US 1989-322670		19890313		
	US 1991-771759		19911004		

AB Chem. and biol. sensors are provided that convert the chem. potential energy of an analyte into a proportionate elec. signal through the transducer action of a **microfabricated** device with an integral electroconductive polymer film. The microsensor devices possess a coplanar arrangement of at least one, and typically three, **microfabricated** interdigitated microsensor electrode arrays each with line and space dimensions that may range from 2-20 .mu.m and is typically 10 .mu.m, a platinized platinum counter electrode of area at least 10 times the area of the interdigitated microsensor electrode array and a chloridized silver/silver chloride ref. electrode. Chem. and biol. sensors constructed according to the present invention employ a thin elec. conducting polymer film that is specifically attached via covalent bond formation to the interdigitated microsensor electrode component of the devices. The elec. conducting polymer film is formed in three layers, the first layer possesses high elec. cond. and is covalently attached to the device surface, the second layer possess an inorg. catalyst and is covalently attached to the first, and the third layer possesses an indicator mol. which may be a bioactive mol. such as an enzyme or member of specific binding pair of biol. origin and is itself covalently attached to the second layer. Binding of an analyte or member of the specific binding pair reagent may result in a change in the elec. impedance (resistance and capacitance or both) of the highly elec. conducting layer. The elec. change in the polymer layers is a sensitive measure of the extent of binding of the binding agent and forms an anal. signal for the binding agent.

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 23 OF 33 CAPLUS COPYRIGHT 2003 ACS
AN 1998:366784 CAPLUS
DN 129:35740
TI Modular concept of a **laboratory** on a **chip** for chemical and biochemical analysis
AU Blankenstein, Gert; Larsen, Ulrik Darling
CS Mikroelektronik Centret (MIC), Technical University of Denmark, 345E, Den.
SO Biosensors & Bioelectronics (**1998**), 13(3-4), 427-438
CODEN: BBIOE4; ISSN: 0956-5663
PB Elsevier Science Ltd.
DT Journal
LA English
AB A novel concept of a modular micro chem. anal. system fabricated on silicon wafers using semiconductor technol. is presented. The strategy was to design and to develop single fluidic components with specific functions for sample handling, manipulation and measurement. All devices presented are based on monolithic structures manufd. with the same simple **microfabrication** techniques. The devices are designed to handle particle contg. solns. allowing novel applications in biochem. and cytochem. anal. Components have been developed for chem. anal. such as flow switches for valve-less sample injection and flow guiding, immobilization reactors, dialysis chambers, and filters, and for cell anal. and flow cytometry such as cell sorters and coulter counters. These single fluidic components are freely combinable, which enables the design of analyzers designed for a specific application. Addnl., all fluid components can be equipped with integrated gold electrodes allowing cond. measurements inside the **microchannels**. This opens up new application in chem. and biochem. anal. A few examples in cell diagnostics such as flow cytometry on a chip and in micro flow injection anal. are shown.

RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 25 OF 33 CAPLUS COPYRIGHT 2003 ACS
AN 1998:323896 CAPLUS
DN 129:92344
TI From **biosensors** to biosensing systems
AU Verpoorte, Elisabeth
CS Institute of Microtechnology, University of Neuchatel, Neuchatel, CH-2007, Switz.
SO Sensor Technology in the Netherlands: State of the Art, Proceedings of the Dutch Sensor Conference, 3rd, Enschede, Neth., Mar. 2-3, 1998 (**1998**), 67-75. Editor(s): Van den Berg, Albert. Publisher: Kluwer, Dordrecht, Neth.
CODEN: 66CAAQ
DT Conference; General Review
LA English
AB A review with 55 refs. There are several different approaches to bioanal. measurements, including **biosensors**, flow injection anal., and sepn. techniques such as capillary electrophoresis. Automating the use of all these techniques usually involves incorporation into flow systems, a concept which is known as the total anal. system (TAS). Optimization of anal. performance in most flow systems, particularly those which are based on high resoln. sepn. methods, can be accomplished through miniaturization of the system to a **.mu.TAS**. The use of **microfabricated** devices has become a popular approach for realizing miniaturized anal. systems for measurements on a sub-.mu.L scale. This presentation will focus on the use of **.mu.** **TAS**-type systems, both **biosensor** and non-**biosensor** based, for biosensing applications. A brief introduction to the anal. methods available for adaptation to bioanal. . **mu.TAS** is included in this review. Finally, the potential of **.mu.TAS** to combine the best aspects of both stand-alone **biosensors** and benchtop biosensing systems will be discussed.
RE.CNT 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 27 OF 33 CAPLUS COPYRIGHT 2003 ACS
AN 1998:279905 CAPLUS
DN 129:51503
TI Miniaturization of multifunctional **biosensor** with enzyme-immobilized beads
AU Murakami, Yuji; Yokoyama, Kenji; Tamiya, Eiichi
CS Japan Advanced Institute of Science and Technology, Ishikawa, 923-1292, Japan
SO Proceedings of SPIE-The International Society for Optical Engineering (**1998**), 3258(Micro- and Nanofabricated Structures and Devices for Biomedical Environmental Applications), 11-14
CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
AB We propose a novel method for individual immobilization. Biomaterials were first immobilized on support materials that had similar size as the sensor element. The immobilization enlarges the size of biomaterials. The support is arranged on the sensor element by self-assembling. The element was **microfabricated** to have a microstructure for self-assembling. When both size of biomaterial and the element are the same, self-assembly is expected to give one-to-one ratio along with individual response. Various enzymes were immobilized onto glass beads and were put near the pits of the chip and the chip was slanted to roll the beads into the pits. When the beads immobilized only with peroxidase were arranged, the addn. of luminol and hydrogen peroxide gave chemiluminescence at almost every site. Next, the beads immobilized only with glucose oxidase as dummy enzyme were mixed with HRP-beads and arranged to the sites. Addn. of substrate gave limited no. of luminescence- sites, though every site had an enzyme-immobilized bead.

These results show that two kinds of enzymes were sep. arranged in the site in one-to-one ratio.

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L27 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2003 ACS
AN 1999:670994 CAPLUS
DN 131:296192
TI Polymer-electrodes for detecting nucleic acid hybridization and method of use thereof
IN Thorp, H. Holden; Loomis, Carson R.; Napier, Mary E.
PA The University of North Carolina At Chapel Hill, USA; Xanthon, Inc.
SO U.S., 20 pp., Cont.-in-part of U.S. 5,871,918.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 7

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5968745	A	19991019	US 1997-950503	19971014
	US 5871918	A	19990216	US 1996-667338	19960620
	EP 1193315	A1	20020403	EP 2001-130632	19960624
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	US 6180346	B1	20010130	US 1999-267552	19990312
	US 6127127	A	20001003	US 1999-296929	19990422
	US 6387625	B1	20020514	US 2000-596607	20000619
	AU 753350	B2	20021017	AU 2000-53462	20000817
	US 2002106683	A1	20020808	US 2001-8233	20011106
PRAI	US 1995-495817	B2	19950627		
	US 1996-667338	A2	19960620		
	US 1995-60949P	P	19950627		
	US 1996-16265P	P	19960419		
	US 1996-667337	A2	19960620		
	EP 1996-922533	A3	19960624		
	US 1997-950503	A2	19971014		
	US 1998-179665	A2	19981027		
	US 2000-603217	A3	20000626		

AB A polymer-electrode including a substrate having a conductive working surface; and a **polymer layer** on the **conductive** working surface was designed. The polymer **layer** has a plurality of **microfluidic** reaction openings distributed throughout the **layer**. An oligonucleotide probe can be attached to the polymer **layer** and is available to capture target nucleic acid. A sol. mediator can diffuse freely and transfer electrons from the preselected base in the hybridized nucleic acid to the conductive working surface of the substrate. An electronic signal generated from the electron transfer reaction is detected and quantitated.
RE.CNT 92 THERE ARE 92 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L27 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2003 ACS
AN 1998:414685 CAPLUS
DN 129:51691
TI Chemical and biological sensors having electroactive polymer thin films attached to **microfabricated** devices and possessing immobilized indicator moieties
IN Guiseppi-Elie, Anthony
PA USA
SO U.S., 30 pp., Cont.-in-part of U.S. 5,352,574.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5766934	A	19980616	US 1994-318494	19941004
	US 5352574	A	19941004	US 1991-771759	19911004
PRAI	US 1989-322670		19890313		
	US 1991-771759		19911004		

AB Chem. and biol. sensors are provided that convert the chem. potential

energy of an analyte into a proportionate elec. signal through the transducer action of a **microfabricated** device with an integral electroconductive polymer film. The microsensor devices possess a coplanar arrangement of at least one, and typically three, **microfabricated** interdigitated microsensor electrode arrays each with line and space dimensions that may range from 2-20 .mu.m and is typically 10 .mu.m, a platinized platinum counter electrode of area at least 10 times the area of the interdigitated microsensor electrode array and a chloridized silver/silver chloride ref. electrode. Chem. and biol. sensors constructed according to the present invention employ a thin elec. **conducting polymer** film that is specifically attached via covalent bond formation to the interdigitated microsensor electrode component of the devices. The elec. **conducting polymer** film is formed in three layers, the first **layer** possesses high elec. cond. and is covalently attached to the device surface, the second **layer** possess an inorg. catalyst and is covalently attached to the first, and the third **layer** possesses an indicator mol. which may be a bioactive mol. such as an enzyme or member of specific binding pair of biol. origin and is itself covalently attached to the second **layer**. Binding of an analyte or member of the specific binding pair reagent may result in a change in the elec. impedance (resistance and capacitance or both) of the highly elec. conducting **layer**. The elec. change in the polymer layers is a sensitive measure of the extent of binding of the binding agent and forms an anal. signal for the binding agent.

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

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